

Name Wafi Hassan

Period 1

- 1) d
- 2) a
- 3) d
- 4) e
- 5) b
- 6) ~~18.22 N~~ 153.21 N
- 7) a) 2.84 m/s² b) 38.52 N
- 8) 0.32
- 9) e e
- 10) 1.67 m/s²
- 11) c
- 12) d
- 13) a
- 14) a
- 15) c
- 16) d
- 17) a
- 18) 61.54 N
- 19) 37302.6 N
- 20) c

- 21) b
- 22) c
- 23) c
- 24) _____
- 25) _____
- 26) _____
- 27) _____
- 28) _____
- 29) _____
- 30) _____
- 31) _____
- 32) _____
- 33) _____
- 34) _____
- 35) _____
- 36) _____
- 37) _____
- 38) _____
- 39) _____
- 40) _____

-1
(96)²⁵

Force Test

1) Calculate the weight of a 0.15 gm spider.

- a) 0.4 N b) $9.9 \times 10^{-4} \text{ N}$ c) $2.6 \times 10^{-3} \text{ N}$ **d) $1.5 \times 10^{-3} \text{ N}$** e) $1.6 \times 10^{-2} \text{ N}$

2) A 70-kg man rides in an elevator that is accelerating downward at 2.5 m/s^2 . What is his apparent weight?

- a) 511 N** b) 710 N c) 187 N d) 850 N e) 428 N

3) Calculate the acceleration of the system shown. The horizontal surface is frictionless.

- d) 4.3 m/s^2** c) 1.8 m/s^2

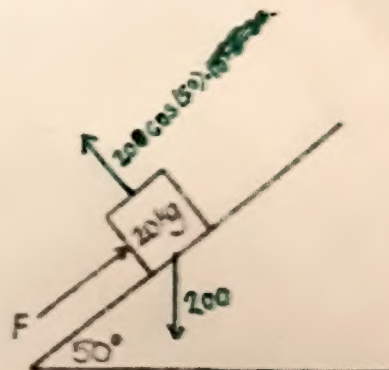
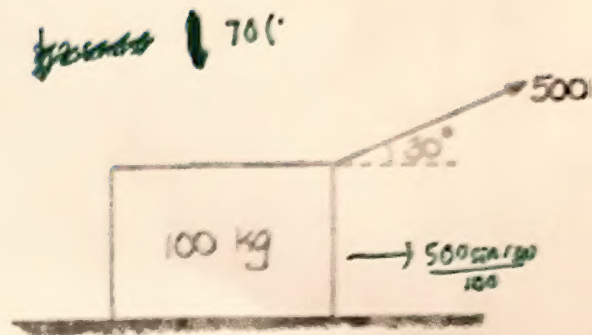
4) When a moving car is brought to a stop with the brakes, its acceleration vector is

- a) in the same direction as its velocity vector.
b) equal to zero.
c) directed downward.
d) directed upward.
e) opposite to the velocity vector.

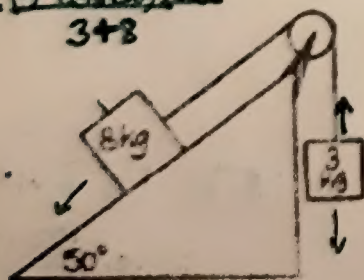
5) The vector that represents the net force applied to an object will always be parallel to

- a) the velocity vector. **b) the acceleration vector.** c) the weight vector. d) the mass vector. e) the displacement vector.

6) A 20-kg mass sits on the frictionless inclined plane shown in the diagram. Calculate the force required to push the mass up the plane at constant speed.



$$a = \frac{(3 - 8 \sin 50)(10)}{3 + 8}$$



7) Consider the system shown. The inclined plane is frictionless.

a. Calculate the acceleration of the system.

b. Calculate the tension in the cord

$$a = \frac{3(10) - 8(10)(\sin 50)}{3 + 8} = -2.84$$

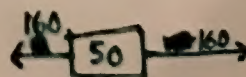
$$2.84 = \frac{T - 3(10)}{83}$$

8) A 50-kg crate slides across a horizontal surface at constant speed when a horizontal force of 160 N is applied to it. What is the coefficient of friction between crate and surface?

$$N_f = \mu N_H$$

$$N_f = \mu 500$$

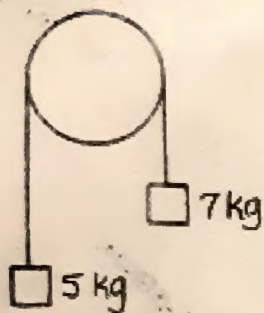
$$\frac{160}{500}$$



Force Test

9) A block moving to the right on a level surface with friction is pulled by an increasing horizontal force also directed to the right. As the applied force increases, which of the following is true of the normal force and the frictional force on the block?

- | | Normal Force | Frictional |
|-----------|-----------------|-----------------|
| a) | increase | increase |
| b) | increase | remain constant |
| c) | remain constant | increase |
| d) | remain constant | decrease |
| <u>e)</u> | remain constant | remain constant |



10) In the Atwood machine shown, the pulley is massless but produces a constant acceleration. What is the acceleration of the system?

11) A unit for mass is a) grams b) kilogram c) a and b d) none of the above

12) The tendency for a body to stay in motion or stay at rest is a) force b) acceleration c) the strong force d) inertia

13) If an unbalanced force acts upon an object it has a) velocity b) acceleration c) inertia d) mass

14) Force is a _____ quality. a) vector b) scalar

15) If all the forces acting upon an object add up to a net force of zero, the object is a) in motion b) at rest c) at rest or in motion with no change in its velocity d) accelerating at a regular rate

16) If there is a net force upon an object, the object is a) at rest b) in motion with a constant velocity c) in equilibrium d) accelerating

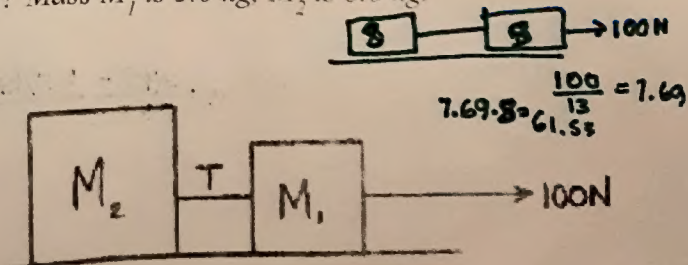
17) One object has twice as much mass as another object. The first object has twice as much a) inertia b) velocity c) gravitational acceleration d) energy

18) What is the tension in the string connecting the two masses? Mass M_1 is 5.0 kg, M_2 is 8.0 kg.

19) A 35-gm bullet traveling at 450 m/s strikes a heavy-wooden block and is brought to rest in 9.5 cm. What average force did the bullet exert on the block while stopping?

$$t = \frac{450}{9.5 \times 10^{-2}}$$

$$= \frac{-450}{4.2 \times 10^{-4}}$$



$$7.69 \cdot 8 = \frac{100}{13} = 7.69$$

20) A person is running on a track. Which of the following forces propels the runner forward? a) The normal force exerted by the ground on the person b) The normal force exerted by the person on the ground c) The force of friction exerted by the ground on the person d) The force of friction exerted by the person on the ground

$$0 - 450 = -450$$

$$\frac{7.5}{450}$$

Force Test

- 21) The force of normal is
object c) is equal to mass
a) equal to the net force b) force exerted by the surface and perpendicular to the
d) is always equal and opposite to the weight of the object
- 22) Forces always occur
a) by themselves b) as single quantities c) in pairs d) in triplets
- 23) The direction of the net force is always
a) in the same direction of the momentum b) equal to its weight
c) is the same direction as its acceleration d) scalar